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PROCEEDINGS

INTERNATIONAL CONFERENCE ON MATHEMATICS, SCIENCE, TECHNOLOGY, EDUCATION AND THEIR APPLICATIONS

Makassar, August 20-21, 2014

ICMSTEA 2014

State University of Makassar

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"Recent Research and Issues on Mathematics, Science, Technology, Education and their Applications"

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Faculty of Mathematics and Science

State University of Makassar

ICMSTEA 2014: RECENT RESEARCH AND ISSUES ON MATHEMATICS, SCIENCE, TECHNOLOGY, EDUCATION AND THEIR APPLICATIONS

Forewords from the Head of Committee

AssalamuʼalaikumWarahmatullahiWabarakatuh.
Good morning and may God's blessings be upon us all.

Your Excellency the Rector of State University of Makassar (UNM) Prof. Dr. H. Arismunandar, M.Pd. Ladies and gentlemen, on behalf of the conference committee, first, I would like to give our welcome to all the delegates, keynote speakers, invited speakers, parallel speakers and participants coming today. Welcome to the conference, welcome to State University of Makassar, and welcome to Makassar.

This conference entitled "*International Conference on Recent Research and Issues in Mathematics, Sciences, Technology, Education and Their Applications (ICMSTEA) 2014".* It is assigned to celebrate the 53rd commemoration of State University of Makassar. The conference is organized by the Faculty of Mathematics and Science in conjunction with several committee members from other faculties within State University of Makassar.

Ladies and gentlemen, the conference proudly invites eleven keynote speakers coming from several countries. Therefore, I would like to express my sincere thanks to the keynote speakers, including:

1. Professor Max Warshauer (Texas State University, USA)
2. Professor Naoki Sato (Kyoto University, Japan)
3. Professor Peter Hubber (Deakin University, Australia)
4. Professor Susie Groves (Deakin University, Australia)
5. Dr. Frans Van Galen (Utrecht University, Netherlands)
6. Professor DuangjaiNacapricha (Mahidol University, Thailand)
7. Professor Baharuddinbin Aris (Universiti Teknologi Malaysia, Malaysia)
8. Professor SuratmanWoroSuprodjo (Gadjah Mada University, Indonesia)
9. Professor Ismail bin Kailani (UniversitiTeknologi Malaysia, Malaysia)
10. Professor Muhammad ArifTiro (State University of Makassar)
11. Dr. SitiNuramaliatiPrijono (the Indonesian Institute of Sciences)

I would like also to give sincere thanks and gratitude to the invited speakers, including:

1. Prof. Dr. H. Arismunandar, M.Pd. (State University of Makassar)
2. Prof. Kristian H. Sugiyarto, Ph.D (State University of Yogyakarta)
3. Prof. Dr. Sutarto Hadi (Lambung Mangkurat University)
4. Dr. Nurdin Noni, M.Hum (State University of Makassar)
5. Dr. Yuni Sri Rahayu, M.Si. (State University of Surabaya)
6. Dr. Ayuddin M.T. (State University of Gorontalo)
7. Dr. Usman Pagalay (State Islamic University of Malang)
8. Dr. Suyanta, M.Si. (State University of Yogyakarta)
9. Dr. Elisa Sesa, M.Sc. (Tadulako University, Palu)

Next, I want to thanks and welcome to 149 parallel speakers and totally, 450 participants approximately are registered to participate from many universities in Indonesia from Aceh to Papua, and other countries. All of them have shared their research and theoretical papers presented and discussed in the conference.

In this occasion, I would like to thanks Deputy of Governor of South Sulawesi Province (Ir. H. Agus Arifin Nu'mang, M.Si), Mayor of Makassar City (Ir. H. Ramdhan Dhany Pomanto), Rector of UNM (Prof. Dr. H. Arismunandar, M.Pd.), and Director of Post Graduate Program of UNM (Prof. H. Jasruddin Daud Malago), who are very kind to be the host of welcoming dinner and lunch during the conference.

I want to thanks also to Kalla Group, KIA Kalla, Erlangga Press, Opti Lab, and e-Bimbel Yogyakarta for their contribution as the sponsors of this conference.

Finally,it is my privilege to thanks all organizing committee members who have been showing good work and determination for the accomplishment of this conference. I would like to apologize to all of you when there are some inconvenience things during the implementation of this conference.

Thank you and wish you have a meaningful conference.

AssalamuʼalaikumWarahmatullahiWabarakatuh.

Head of Committee,

SuwardiAnnas, Ph.D.

Forewords from the Dean ofFaculty of Mathematics and Science, State University of Makassar

Bismillahirrahmanirrahim
AssalamuʼalaikumWarahmatullahiWabarakatuh

First of all, let us praise to the Almighty, Allah SWT, because of his Blessings and Helps, we are able to gather here to attend the International Conference on Recent Research and Issues in Mathematics, Sciences, Technology, Education and Their Applications (ICMSTEA) 2014.

The development of education and technology in recent decades grows very rapidly. In addition, they have been specialized into many specific topics. Indeed, for researchers and lecturers, being qualified of a specific field as well as being aware of the contemporary development of other fields are two crucial things. One of the reasons why we undertake the conference is to fulfill those two things. By attending the conference, researchers and lecturers have a good opportunity to share their research findings and to obtain broader descriptions of the development of other general knowledge.

We convey our deep appreciation and gratitude to all of the committees that work from the beginning to support and organize the conference. We also strongly expect the participants of the conference to be continually productive, increase the capacity in conducting a research, and carry out both national and international scientific publications.

Finally, let me again recite thank you to the all participants of the conference who are receptive to spend their time to be present and entirely involved at this events. I wish the conference advantageous for all of us.
Billahitaufiqwalhidayah,

WassalamuʼalaikumWarahmatullahi Wabarakatuh.

Dean of Faculty of Mathematics and Science
State University of Makassar

Prof. Dr. H. HamzahUpu, M.Ed.

Forewords from Rector of UNM

Bismillahirrahmanirrahim
AssalamuʼalaikumWarahmatullahiWabarakatuh

Your respectable, the high officials of State University of Makassar, the committee, the speakers, and the participants of conference.

It gives me a great pleasure to extend to you all a very warm welcome, especially to our keynote speakers who have accepted our invitation to attend the conference.
It is an opportune time to convey to you that UNM is celebrating the 53rd Dies Natalis and it commends the faculty of Mathematics and Science (FMIPA) to be in charge of all activity sequences in the Dies Natalis. However, the support of other faculties is also really influential and gives valuable contribution to the success of the event.

In that celebration, we undertake several agendas including educational and sport activities. The conference, ICMSTEA, is one of our educational activities that covers a wide range of very interesting items relating to mathematics, sciences, education, technology and their applications.

By taking participation of this seminar, it is highly expected to all of us to share our research findings to society and continuously develop new ideas and knowledge. Those things are two significant steps in improving the quality of nations around the world, increasing our familiarity to each other, and even avoiding underdevelopment.

On this good occasion, let me quote what Obama said about the education related to this conference and I wish fruitful for all of us:

Every single one of you has something you're good at. Every single one of you has something to offer. And you have a responsibility to yourself to discover what that is. That is the opportunity an education can provide.

Furthermore, I would like to take this opportunity to express my heartfelt gratitude to all organizing committee especially for the Faculty of Mathematics and Science that primarily hosts this conference particularly and other Dies Natalis events generally.

Finally, this is a great time for me to declare the official opening of the International Conference on Recent Research and Issues in Mathematics, Sciences, Technology, Education and Their Applications (ICMSTEA) 2014.

I wish you a very enjoyable stay in Makassar, I warmly welcome you again, as in Makassar, we say "salamakkibatturimangkasara".

Wassalamuʼalaikumwarahmatullahiwabarakatuh.

Rector of State University of Makassar

Prof. Dr. H. Arismunandar, M.Pd.

TABLE OF CONTENTS

THE INFLUENCE OF THE IMPLEMENTATION OF UNCONSCIOUS MIND PROGRAM TO STUDENTS' MATHEMATICS LEARNING ACHIEVEMENT

Muhammad Hijrah[1], Sabri[2], & Ja'faruddin[3]
[1,2,3] Department of Mathematics, Faculty of Mathematics and Science,
State University of Makassar, Makassar, Indonesia.
e-mail address: muhammad_hijrah@ymail.com

Abstract

This study is categorized as quasi-experimental research that aims to determine whether the implementation of the unconscious mind program influences students' mathematics learning motivation and students' mathematics knowledge. Two classes of experimental units in this study were randomly drawn from two schools in the academic year 2013/2014; they were students of XI IPA 3 class of SMAN 1 Pomalaa as the experiment class and XI IPA 1 of SMA Muhammadiyah Dawi-dawi as a control class. The data collected were the data of students' mathematics learning motivation and students' mathematics knowledge. The data were analyzed using descriptive statistics and inferential statistics. Statistical testing showed that: (1) students' mathematics learning motivation and students' mathematics knowledge of experiment class are significantly different from those of the control class; (2) students' mathematics learning motivation of experiment class significantly influenced the students' mathematics knowledge; and (3) students' mathematics learning motivation of control class significantly influenced the students' mathematics knowledge.

Keywords: *Learning achievement, quasi-experimental research, unconscious mind program.*

1. Introduction

Mathematics is one of compulsory subjects for all elementary and secondary education. According to Soedjadi (2007:18), mathematics is one of the basic sciences wich plays an important role in the development of science and technology. The results of the Trends in International Mathematics and Science Study (TIMSS) 2011 revealed that the mathematical skills of Indonesias high school students ranked 38th of 45 countries (Mullis, Martin, Foy, & Arora, 2012:42).

In terms of the improvement of the quality of mathematics learning achievement, up to now the government is doing a good improvement of facilities and infrastructure, teacher professional resources, and curriculum. However, students' mathematics learning achievement is still low both in school exam and national exam. It might root in the students' belief that mathematics is notoriously a difficult subject. Mathematics is considered a frightening specter that causes students'motivation in studying this subject to be very low. Further, motivation affects learning achievement (Ardhana, in Nurhidayah, 2013:46).

Murphy (in McGrath, 2008:14) expresses "there is a gold

mine within you from which you can extract everything you need to live life gloriously, joyously, and abundantly." Even so, not many people are able to maximize the potential of their brain. The function of the brain is to think. There are two types of thought processes i.e. conscious and unconscious/ subconscious mind process. The conscious mind process is that which is capable of reasoning and making decisions. In constrast, the unconscious mind process is capable of driving our heart to pump blood, ordering the lungs to breathe air, and doing other unconscious activities.

The unconscious mind is a latent potential that is not optimally empowered. According to McGregor (2006:35), the unconscious mind has 88% portion in bilding the attitude of an individual, while the conscious mind only has 12% share. Learning process always uses the conscious mind. However, the unconscious mind program can also be used to improve the learning optimization. If applied in learning, unconscious mind program can improve memory, focus, and creativity (Yustisia, 2012:70). From the aforementioned figure, it can be imagined how effective the learning process will be if the learning process takes the unconscious mind process into account.

1.1 Research Problem

The problem under investigation in this research is: "is there any influence of implementing the unconscious mind program to students' mathematics learning achievement?"

1.2 Research Objective

This research aims to know whether the implementation of the unconscious mind influences the students' mathematics learning.

1.3 Research Hypothesis

Hypothesis 1: "There are differences in students' motivation to learn mathematics in the experiment class and control class." Hypothesis 2: "There are differences in students' mathematics knowledge in the experiment class and control class." Hypothesis 3: "There is an influence of students' mathematics learning achevement on students' mathematics knowledge."

2. Material and Method

2.1 Unconscious Mind Program

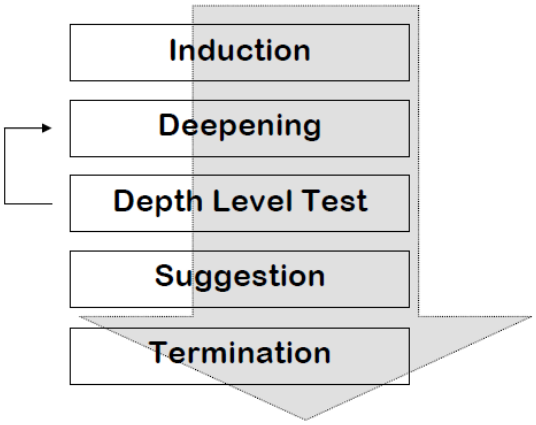
According to Nurindra (2008a:7), the unconscious mind contains all the data in the form of experience, understanding, reasoning an individual starts from birth until this day. The data stored in the unconscious mind can be derived from direct experience or from the inductive experience (derived from the experiences of others). It is important to underline that the data in the unconscious mind can be correct or incorrect, and the unconscious mind cannot distinguish them.

Learning should be much more effective if you use the potential of the unconscious mind. According to Nurindra (2008b:8), the unconscious mind has a gate which functions to select information before being stored in it. The gate determines whether the information is rejected or accepted fully or partially. The gates could be the belief, moral standards, or focus level.

Unconscious mind is very difficult to open by using simple techniques. Nurindra (2008b:14) describes the basic flow of the

unconscious mind program as shown in Figure 1.

Figure 1. Basic Flow of Unconscious Mind Program



2.2 Type of Research

This study was categorized as quasi-experimental research because the treatment is given to the experimental group only, namely, by applying unconscious mind program in the beginning of the learning process.

2.3 Time and Location of Research

This research was conducted in the second semester of academic year 2013/2014 in SMA Negeri 1 Pomalaa and SMA Muhammadiyah Dawi-dawi situated in Kolaka, South East Sulawesi.

2.4 Research Design

After doing the learning process then both classes were given a test to find out the progress of each class. Thus, this research design was control group design-posttest. Table 1 shows the research design.

Table 1. Research Design

Class	Treatment	Posttest	
E	X	O_{11}	O_{21}
C	-	O_{12}	O_{22}

where:

E = experiment class.
C = control class.
X = implementation of unconscious mind program.
O_{11} = mathematics knowledge test of experiment class.
O_{21} = mathematics learning motivation of xperiment class.
O_{12} = mathematics knowledge test of control class.
O_{22} = mathematics learning motivation of control class.

2.5 Experimental Unit and Treatment

The experimental units in this study were randomly selected by simple random sampling method to take one experimental class and one control class. The experimental class was taught by using the direct instruction model and the treatment given was the application of the unconscious mind in the opening of learning process for each meeting. The control class was taught by using the same model without the implementation of the unconscious mind program.

2.6 Procedure of Research

2.6.1 Preparation phase

In this stage the researcher prepared learning package to use in the learning process. The device included lesson plans, student worksheets, tests of mathematics knowledge, and motivation questionnaires.

2.6.2 Implementation phase

In the implementation phase, both classes were taught by using the direct instructional model. The control class was without the unconscious mind program, while the experimental class was set in the unconscious mind program. Both of these classes underwent 14 lessons, respectively.

2.6.3 Final phase

After implementing the treatment, the motivation questionnaire was delivered to students and they sit in the mathematics knowledge test. The data of the experimental class the control class were analyzed to test the research hypotheses.

3. Results and Discussion

3.1 Descriptive Statistics Analysis

3.1.1 Description of Students' Learning Motivation

The category of the students' motivation to learn mathematics is shown in Table 2.

Table 2. Category of Students' Mathematics Learning Motivation

Experiment Class			
Interval	Category	Frequency	Percentage (%)
0.00-1.49	Very Low	0	0.0
1.50-2.49	Low	3	10.0
2.50-3.45	High	26	86.7
3.50-4.00	Very High	1	3.3
Control Class			
Interval	Category	Frequency	Percentage (%)
0.00-1.49	Very Low	0	0.0
1.50-2.49	Low	10	31.2
2.50-3.45	High	22	68.8
3.50-4.00	Very High	0	0.0

3.1.2 Description of Students' Mathematics Knowledge

Descriptive analysis related to students' understanding of mathematics scores can be seen in Table 3.

Table 3. Description of Students' Mathematics Knowledge

Statistics	Statistic Score of the Experiment Class	Statistic Score of the Control Class
Sample Size	30	32
Maximum Score	100	100.0
Minimum Score	56.0	56.0
Mean	83.6	77.0
Median	80.0	75.0
Mode	80	70.0
Variance	154.3	177.5
Standard Deviation	12.4	13.3

3.2 Inferential Statistics Analysis

3.2.1 Hypothesis Testing

a. Testing Hypothesis 1

The analysis shows that the p-value 0.006/2 = 0.003. Because 0.003 < 0.025, then H_0 is rejected and H_1 accepted. It means that there are significant differences of motivation to learn mathematics between students in the experiment class and the control class.

b. Testing Hypothesis 2

The analysis shows that the p-value 0.047/2 = 0.024. Because 0.024 < 0.025, then H_0 is rejected and H_1 accepted. It means that there are significant differences of mathematics knowledge between students in the experiment class and the control class.

c. Testing Hypothesis 3

The analysis shows that the p-value in the treatment group is 0.01/2 = 0.005 < 0.025 and p-value in the control group is 0.00/2 = 0.000 < 0.025. Therefore, then H_0 is rejected and H_1 accepted. It means that there is the students' motivation to learn mathematics significantly influences students' mathematics knowledge. For the experiment class, the linear regression equation obtained is $\hat{y}_1 = 14{,}096 + 0{,}890x_1$. For the control class, it is $\hat{y}_2 = 23{,}343 + 0{,}767x_2$.

4. Discussion

This study took place in two classes from two different schools. The students were taught by using the direct instructional model which was teacher-centered in nature. The processes of learning were set by following the syntax of the model as proposed by Arends (2012:246).

In implementation, Phase 1 covering preliminary learning activities integrated relaxation process/unconscious mind program which consisted of the process of induction, deepening, depth-level test, suggestion, and termination. This step was in line with the process of hypnosis described by Nurindra (2008b:14). In order for students to stay focused during the learning

processes, the breaking phase was inserted at the end of Phase-2 and Phase-4. Nurindra (2008b: 8) claims that the breaking state done quickly and repeatedly will be beneficial to help students be in the re-focus condition.

The results of the study reveal that from both experimental unit groups, most of the students had motivation to learn mathematics which was categorized as high level. Further, the number of students with low motivation in the control class was around threefolds higher than that of students with the same motivation category in the experimental class. However, there was a significant difference of the motivation to learn mathematics of students from the experiment class and the control class. This finding was relevant to the results of an investigation by Ja'faruddin (2010).

Descriptively, the difference between the means of students' knowledge of mathematics from the two experimental units was small enough. The same case was evident in the standard deviation of the scores of mathematics knowledge. However, the inferential analysis showed that mathematics knowledge of students from the two classes was different significantly from each other.

Hamalik (2011) points out that the absence of motivation to learn will result in the laziness of the students to learn, thus unconscious mind program is important to implement in learning process. Accordingly, this study revealed that the influence of learning motivation was found to be significant on the mathematical knowledge of the students. From both classes, we found that the two regression equations obtained were significant. Focusing on the regression coefficients from the equations, we can see that one unit increase of learning motivation contributed to more than 70% unit increase of mathematics knowledge. This reflects the strong correlation between motivation to learn and learning achievement (Narwoto & Suharto, 2013).

The greater mean of mathematics knowledge achieved by the students treated with unconscious mind program is an interesting feature. Although mathematics is notoriously a difficult subject, students in the experimental group still could achieve an average score greater than 80, which is significantly high. This achievement could be claimed as the result of meaningful learning. The finding is supported by Yustisia (2012:70) who argues that programming the subconscious mind can significantly improve an individual's memory, focus, and creativity, which are very important in learning, especially learning mathematics.

5. Conclusions

Based on the results of the data analysis and discussion, some conclusions can be drawn as follows:

1. There are significant differences between the students' mathematics learning motivation in the experiment class and the control class.
2. There are significant differences between the students' mathematics

knowledge in the experiment class and the control class

3. Students' mathematics learning motivation influences students' mathematics knowledge.

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